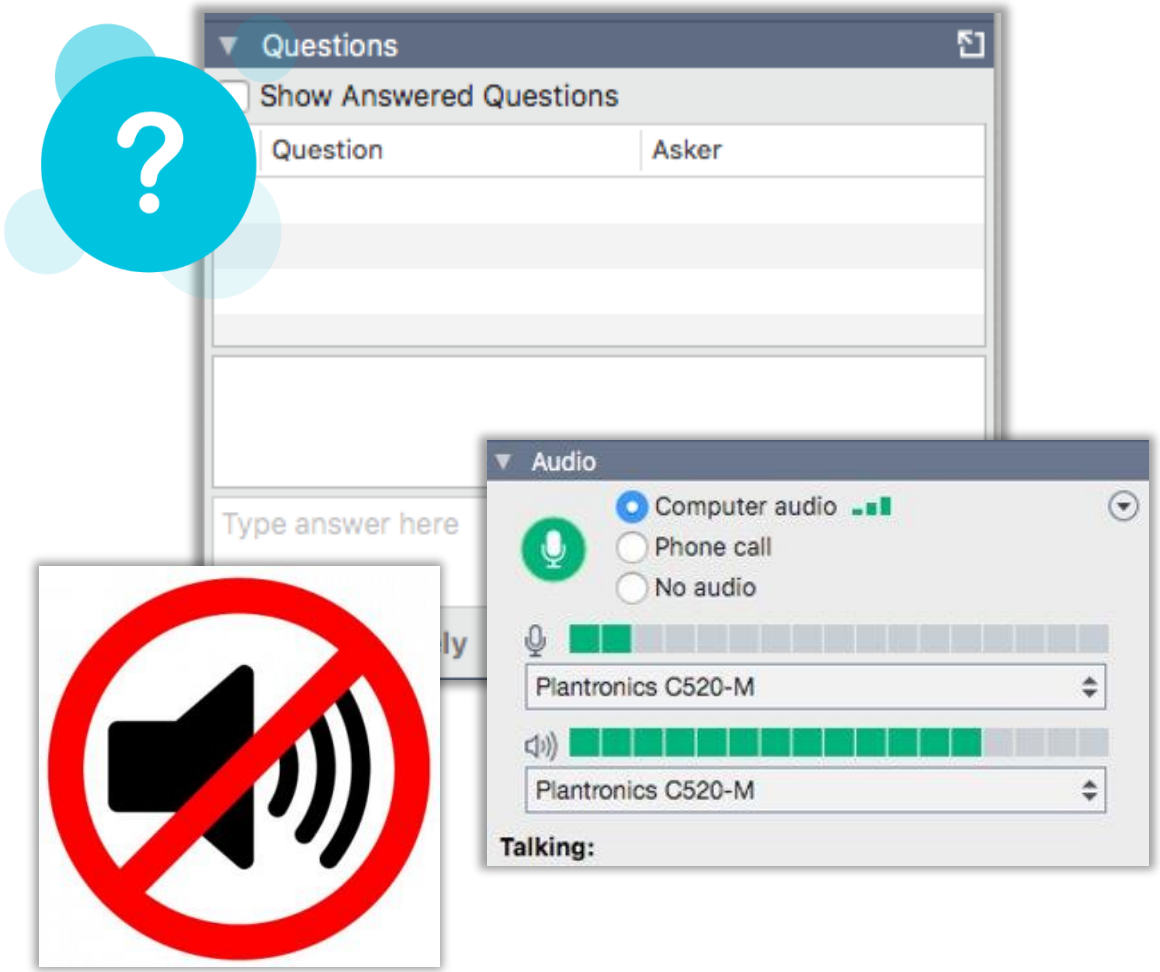
Progress® | kemp

PART III

High Availability: Introductie van LoadMaster

Huisregels

- Kunt u ons niet horen? Probeer dan verbinding te maken met computer audio, niet met de audio van uw telefoon.
- Vragen? Gebruik de *question panel* aan de rechterkant van uw scherm.
- Opnemen? De sessie wordt opgenomen.



Ruben Dröge

rdroge@progress.com
+31627035281

Sr. Sales Engineer
Progress
Rotterdam

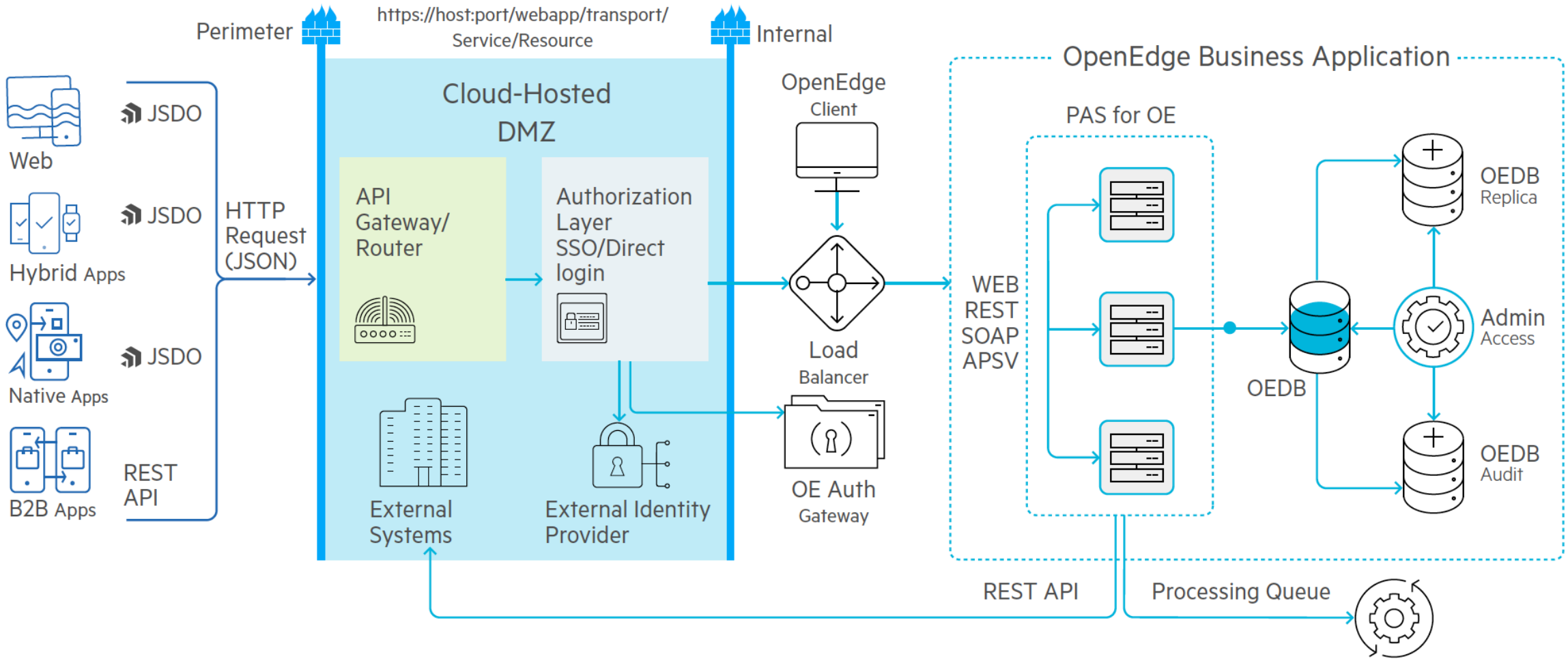
Agenda

- Load Balancing in OE omgeving
- Introductie LoadMaster
- Demo

Progress®

Load Balancing in een OpenEdge omgeving

Reference Architecture for Cloud Deployment



Progress®

Introductie LoadMaster

LoadMaster (ADC)

- **Enhance the Application Experience (AX)**
- **Software-based solution** – With virtual, bare metal, hardware, and cloud offerings
- **Focused on load balancing** – While offering WAF and authentication as an integrated solution
- **Most use cases requiring an ADC are actually looking for a load balancer**

Provide invisible technology with a visible impact, making it easy for our customers to power an always-on application experience.

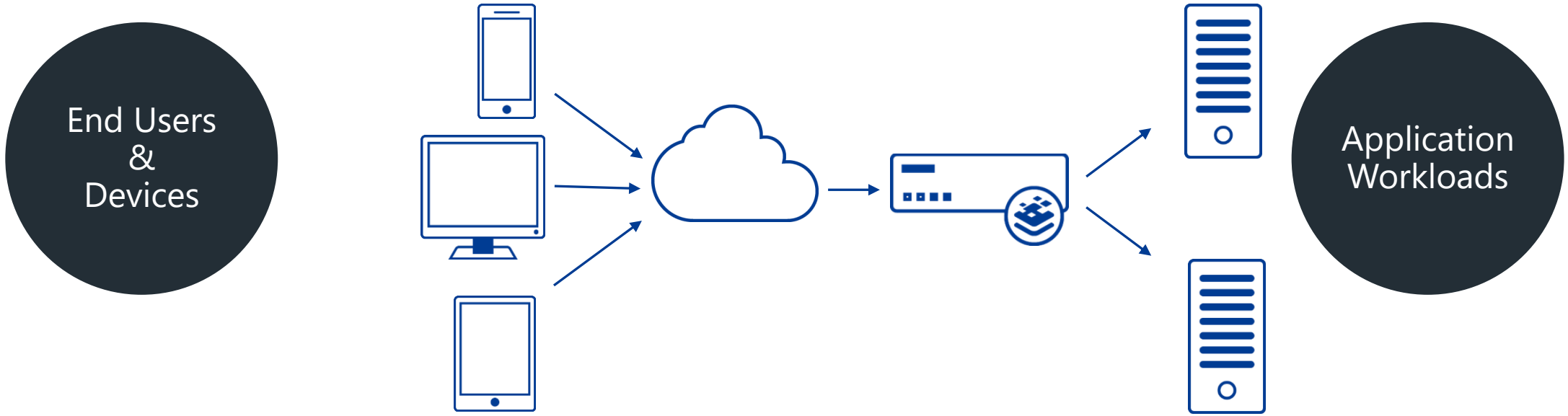
About LoadMaster

What We Do

- Make applications highly available
- Improve scalability & performance
- Secure and optimize application delivery

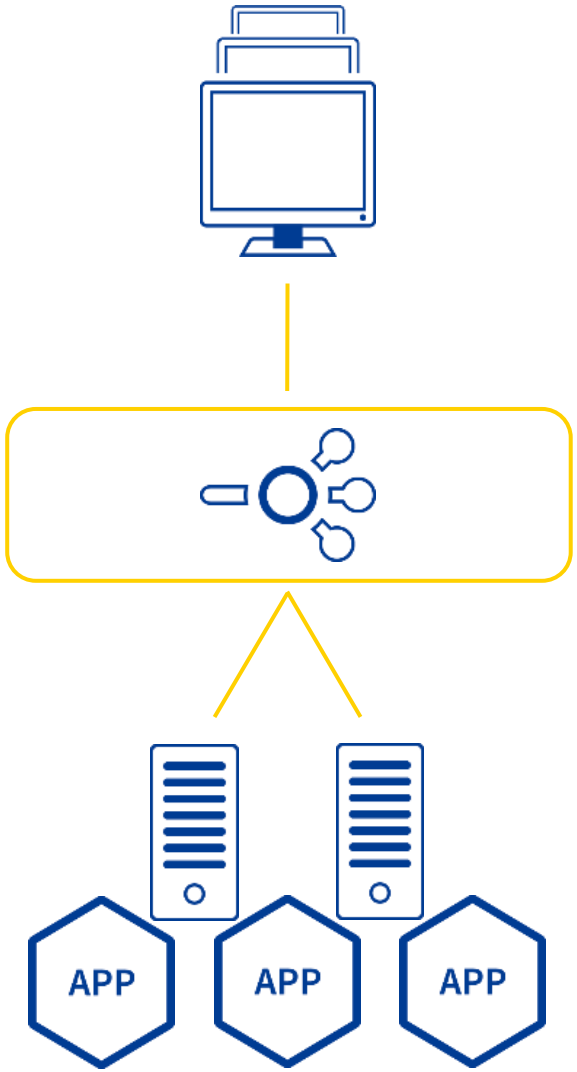
The LoadMaster Difference

- Application/workload-centric
- Platform independence/ubiquity
- Easy to purchase, deploy and use

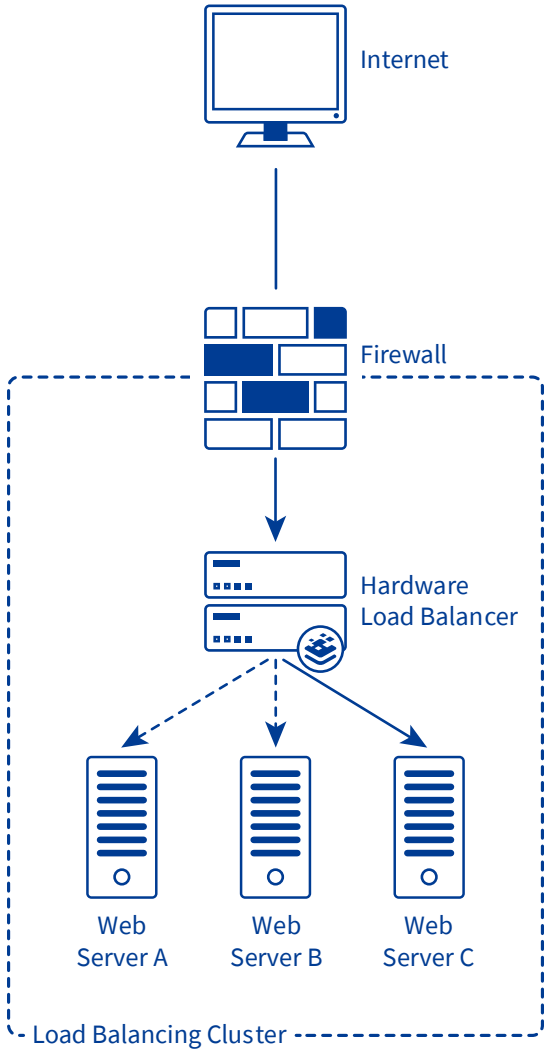


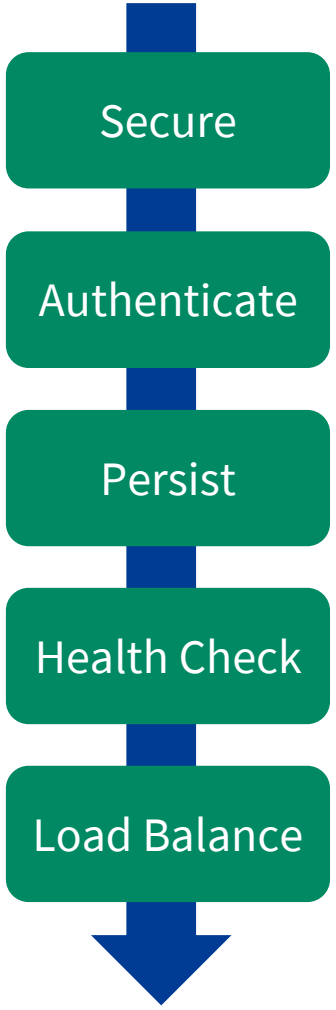
Load Balancing Fundamentals

- **Server Load Balancing (SLB)**
  - Reverse proxy managing pools of application servers
  - Application health checks and distribution algorithms
- **Global Server Load Balancing (GSLB)**
  - DNS management for site availability
  - Site health checks for dynamic DNS responses



Technologies: The Basics of Load balancing





Application Firewall, IPS

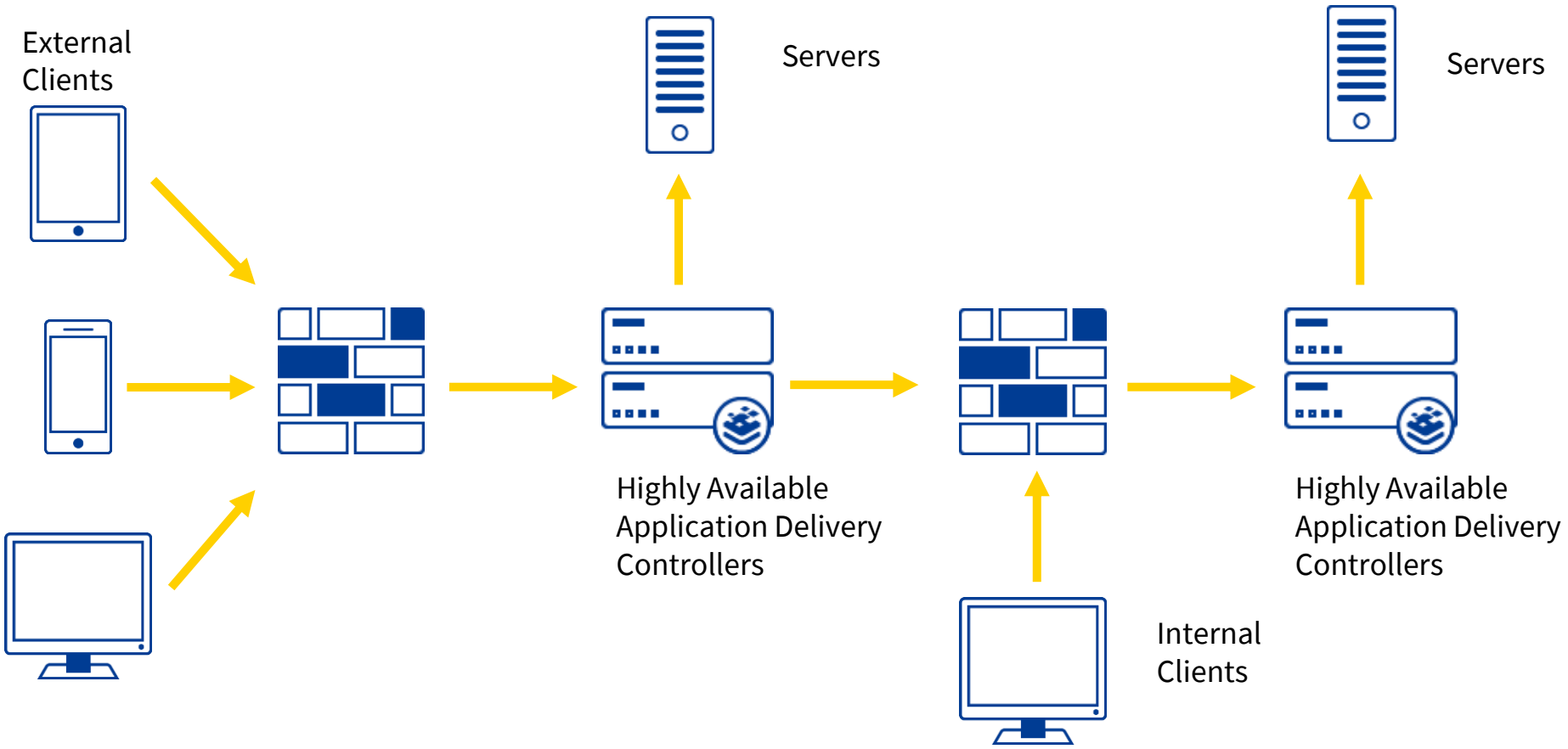
Forms, RADIUS, 2FA, CAC, KCD

Cookie, Source IP

TCP, UDP, application

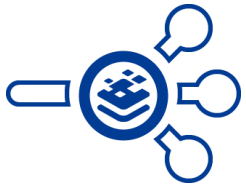
RR, Connection, Response Time, CR

Load Balancing Sample



Industry’s most flexible load balancing options

Virtual Load Balancers

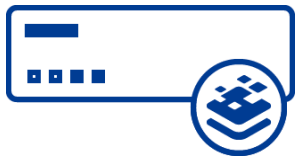


Software load balancing that runs on common hypervisors for cloud and data center infrastructure

Cloud Load Balancers

Cloud-delivered load balancing for public cloud infrastructure including AWS and Azure

Hardware Load Balancers

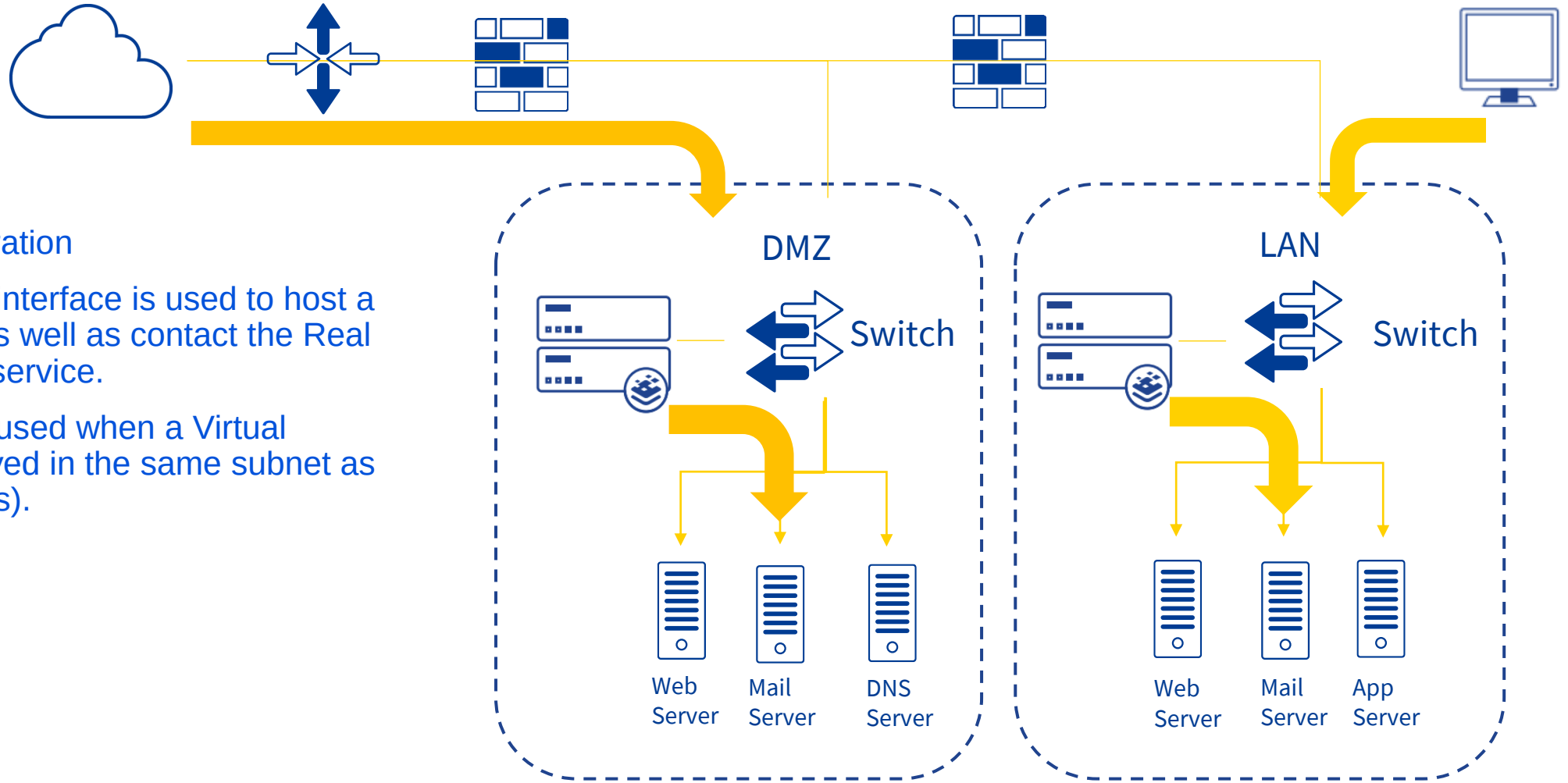


Extensive family of high-performance hardware at unmatched value

Network Topologies

- In general you can use LoadMaster in a one-arm or two-arm configuration.
- For each virtual Service (VS) you can decide whether to use 1-arm or 2-arm setup for the service.
- You can use 1-arm and 2-arm configurations on the same LoadMaster. They can be configured and run at once on the same LoadMaster.

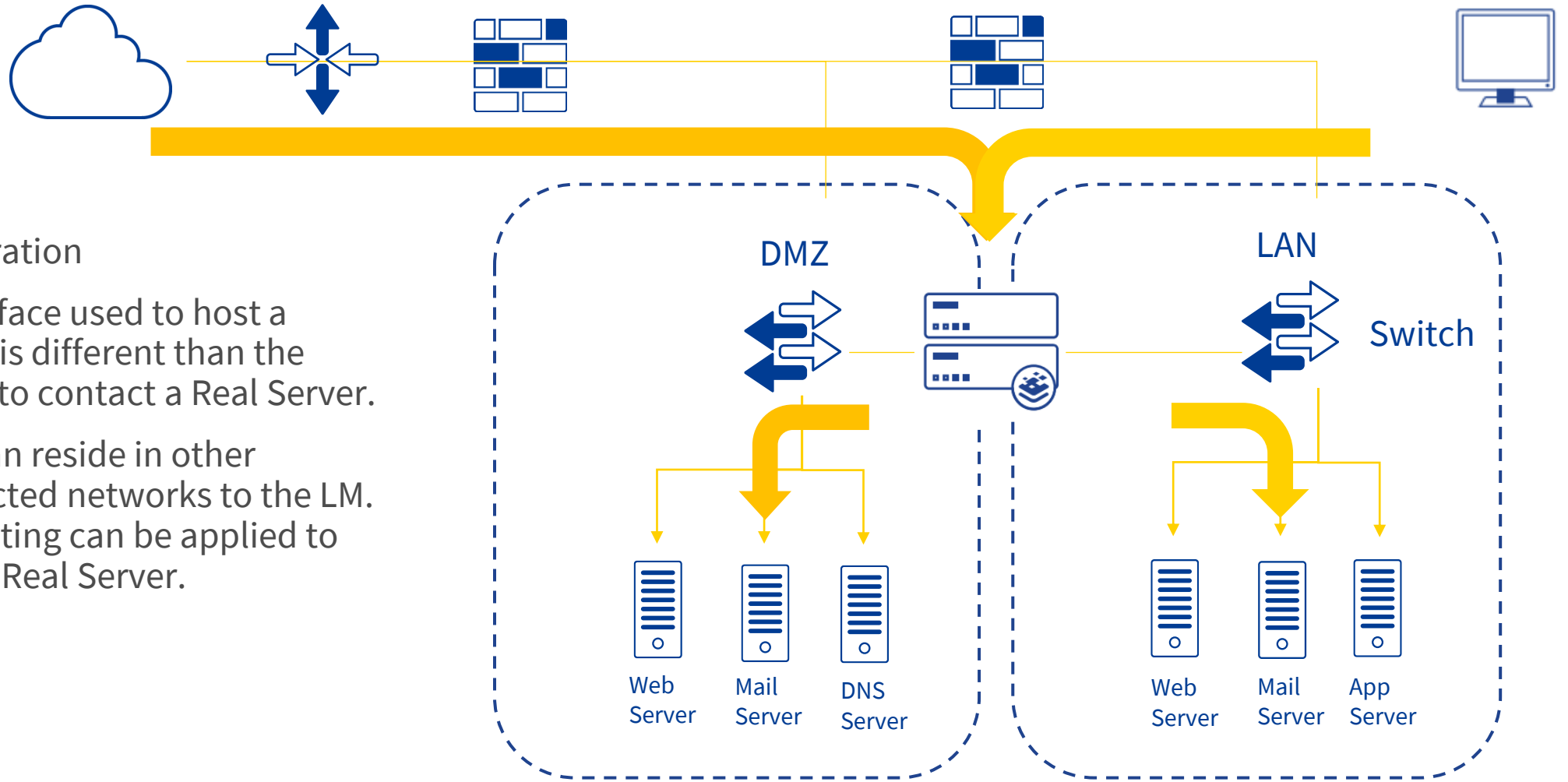
Single Arm Configuration



Single Arm Configuration

- When the same interface is used to host a Virtual Service as well as contact the Real Servers for that service.
- Most commonly used when a Virtual Service is deployed in the same subnet as the Real Server(s).

Two Arm Configuration

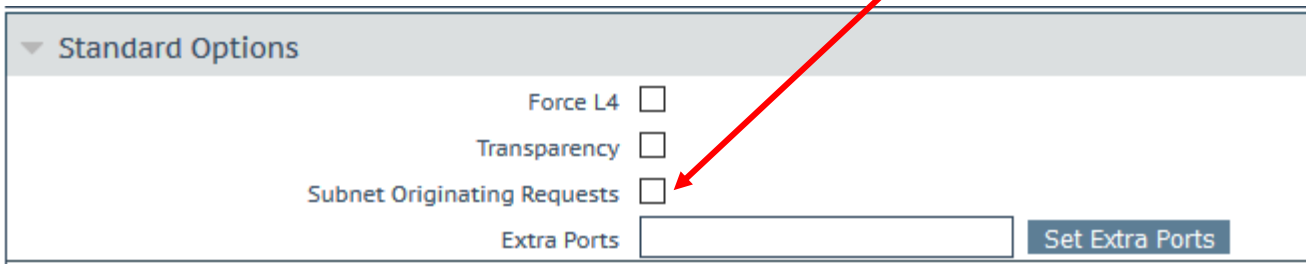


Two Arm Configuration

- When the interface used to host a Virtual Service is different than the interface used to contact a Real Server.
- Real Servers can reside in other directly connected networks to the LM. Alternately routing can be applied to connect to the Real Server.

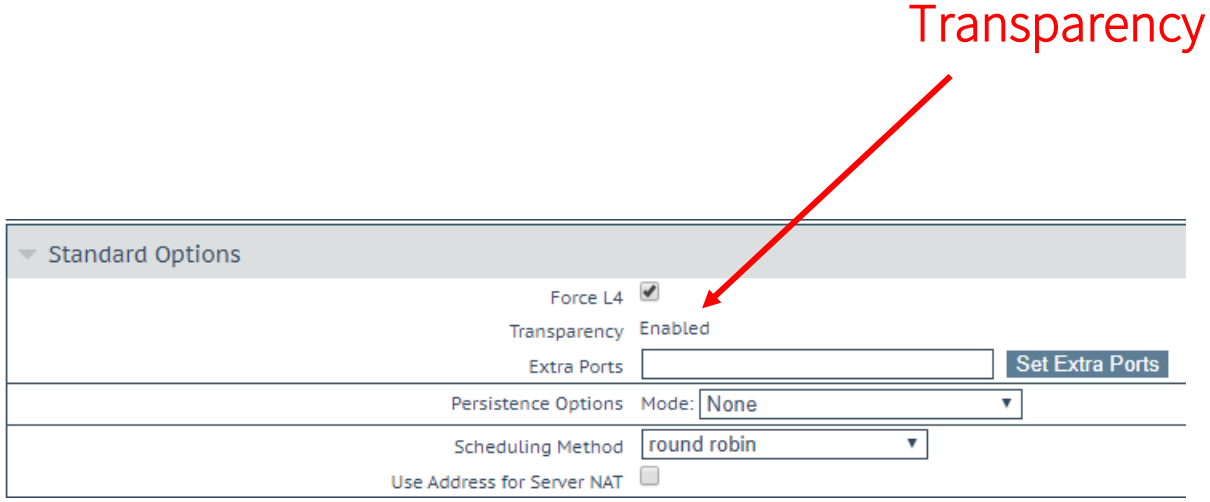
LoadMaster communication Layer 7 (Transparency and SOR off)

Subnet Originating Request - OFF



LoadMaster communication Layer 7 (Transparency on)

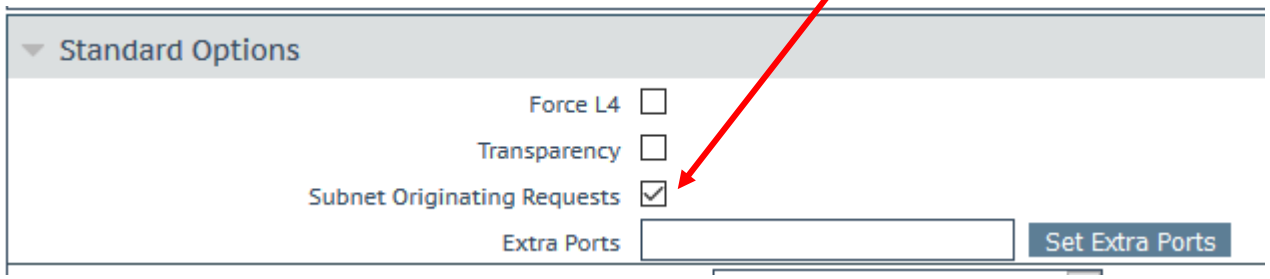
- Backend Server sees traffic from client IP
- LoadMaster Interface IP must be set as default Gateway on the Backend Server
- Client and Backend have to be on different Networks for this to work



LoadMaster communication Layer 7 with SOR

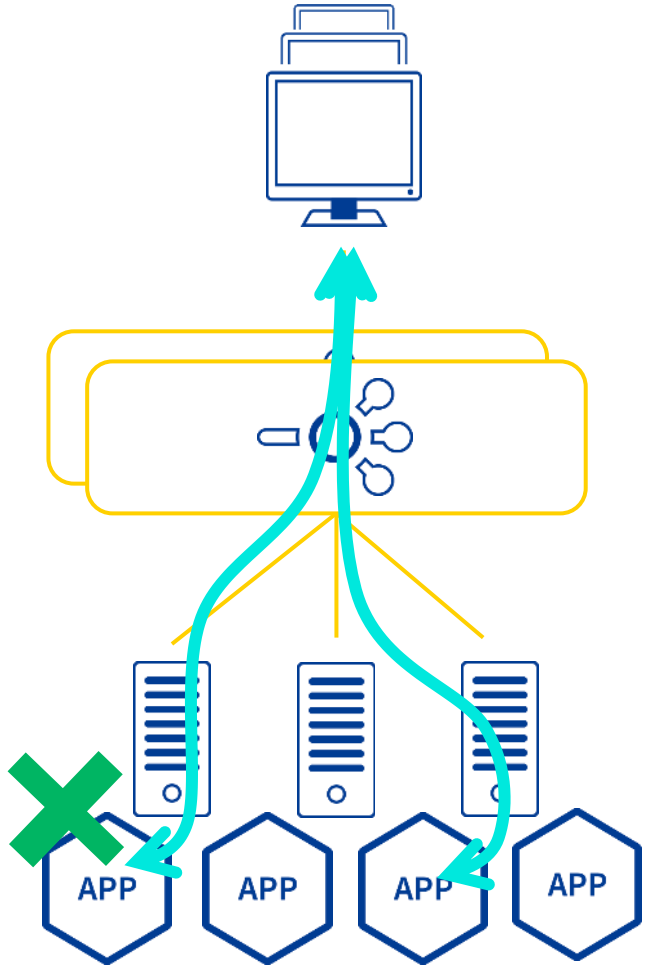
- Backend Server sees traffic from the LoadMaster Interface IP
- Not working with non-local Realservers, Prod traffic than from VIP Address

Subnet Originating Request - ON



Load Balancing Fundamentals

- **Server Load Balancing (SLB)**
  - Manage server access and availability
  - Access = load balancing methods
  - Availability = health checks
- **Load balancing methods:**
  - Round robin
  - Weighted round robin
  - Least connection
  - Weighted least connection
  - Agent-Based Adaptive Balancing
  - Fixed weighting
  - Weighted response time
  - Source IP hash
  - URL Hash



Question: What does load balancing methods do?

Session Persistence

- Session Persistence: Send Returning Client to the same Server
- A.k.a. “Session Affinity”, “Sticky Sessions”
- Based on - Cookies, Source IP, RDP token, Header, ...
- Port Following - Provides persistence for HTTP and SSL services

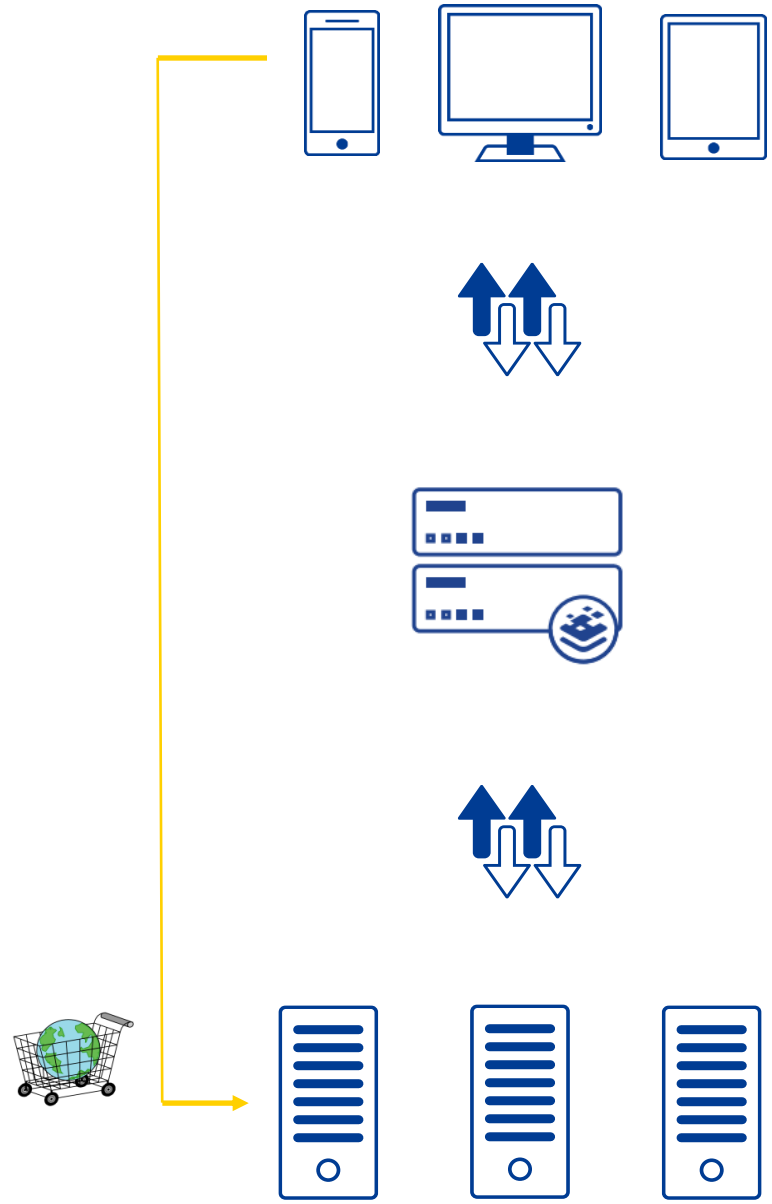
Layer 7 / Source IP-based Server Persistence

Better: Application Level (L7) Criteria with SSL Offload
*

Examples:

- Cookie
  Either using application's cookie
  or set own ("Active Cookie")
- Super HTTP (HTTP Applications)
  Multiple HTTP Headers combined
- URL Hash
  Same URL
  = Same Server
- Hash of HTTP Query Item
  Same HTTP Request Parameter
  = Same Server

Fallback to Source IP possible
("…or Source IP")



* L7 without SSL = Source IP

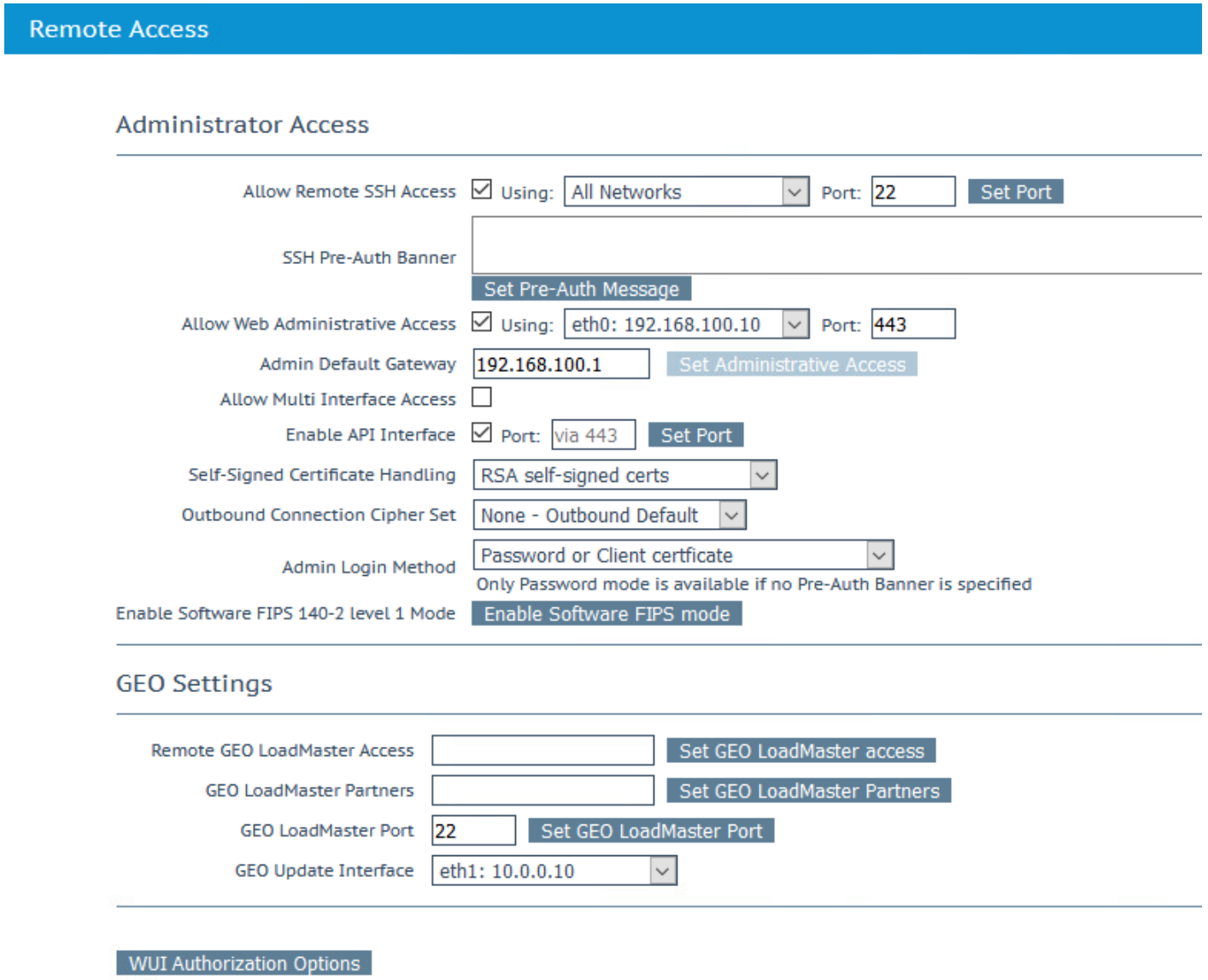
SSL Offloading

- Load Balancing of encrypted traffic
- Or decryption on the Load Master
- Optional Re-Encryption between LoadMaster and Servers
- Advantages?

Load Master – Administrative Access

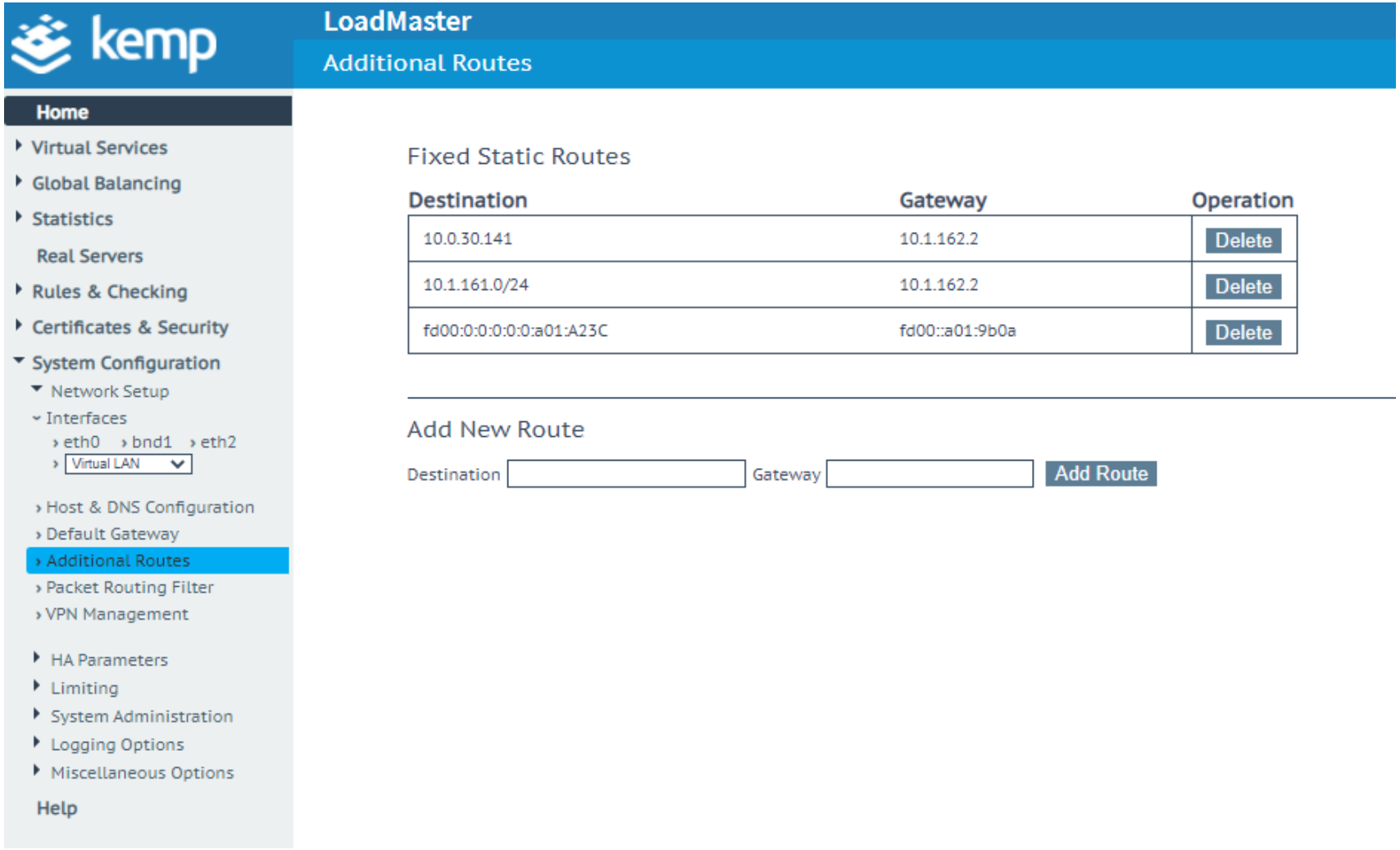
The Administrator WUI Access can be set to a dedicated Interface or be granted to multiple

- It is important to Set the Default Gateway for the NIC set for the WUI Access
- **Certificates and Security > Remote Access**



Load Master: Static Routes

Only use these routes for access to remote real servers, not for client routing



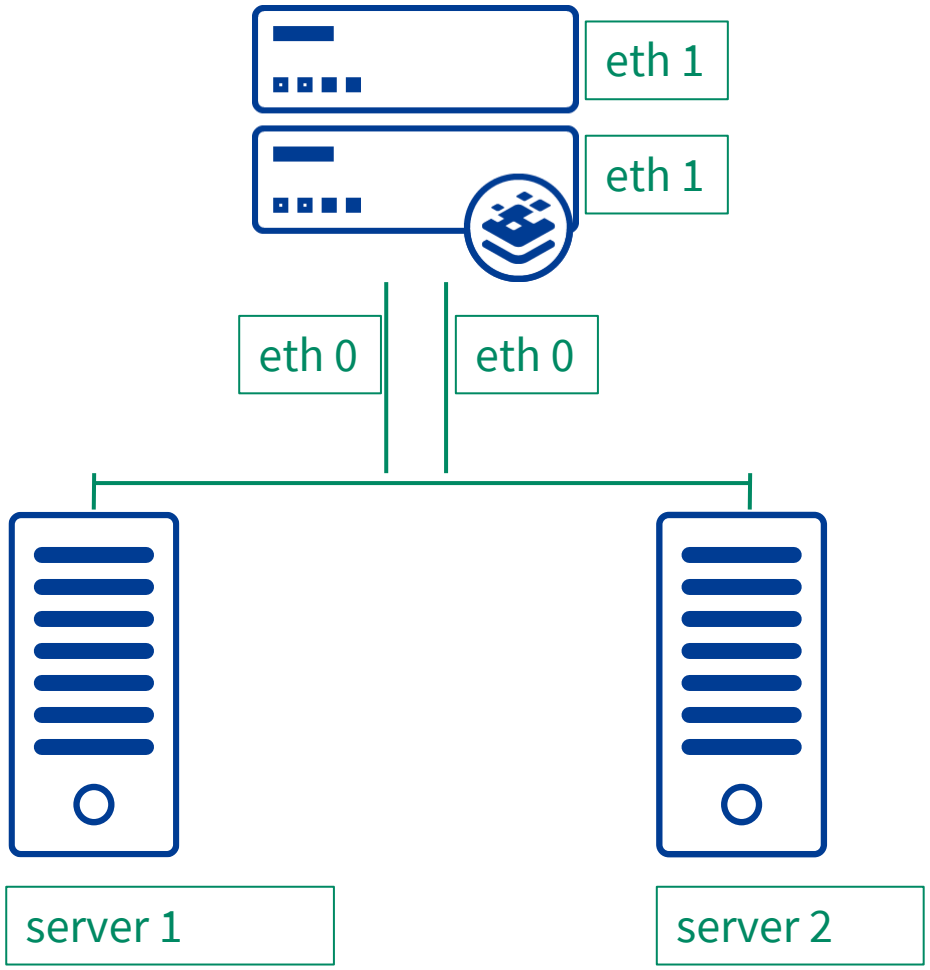
Redundancy.... What are my options?

- High Availability pair
- Clustering
- Geo Partnering

Progress®

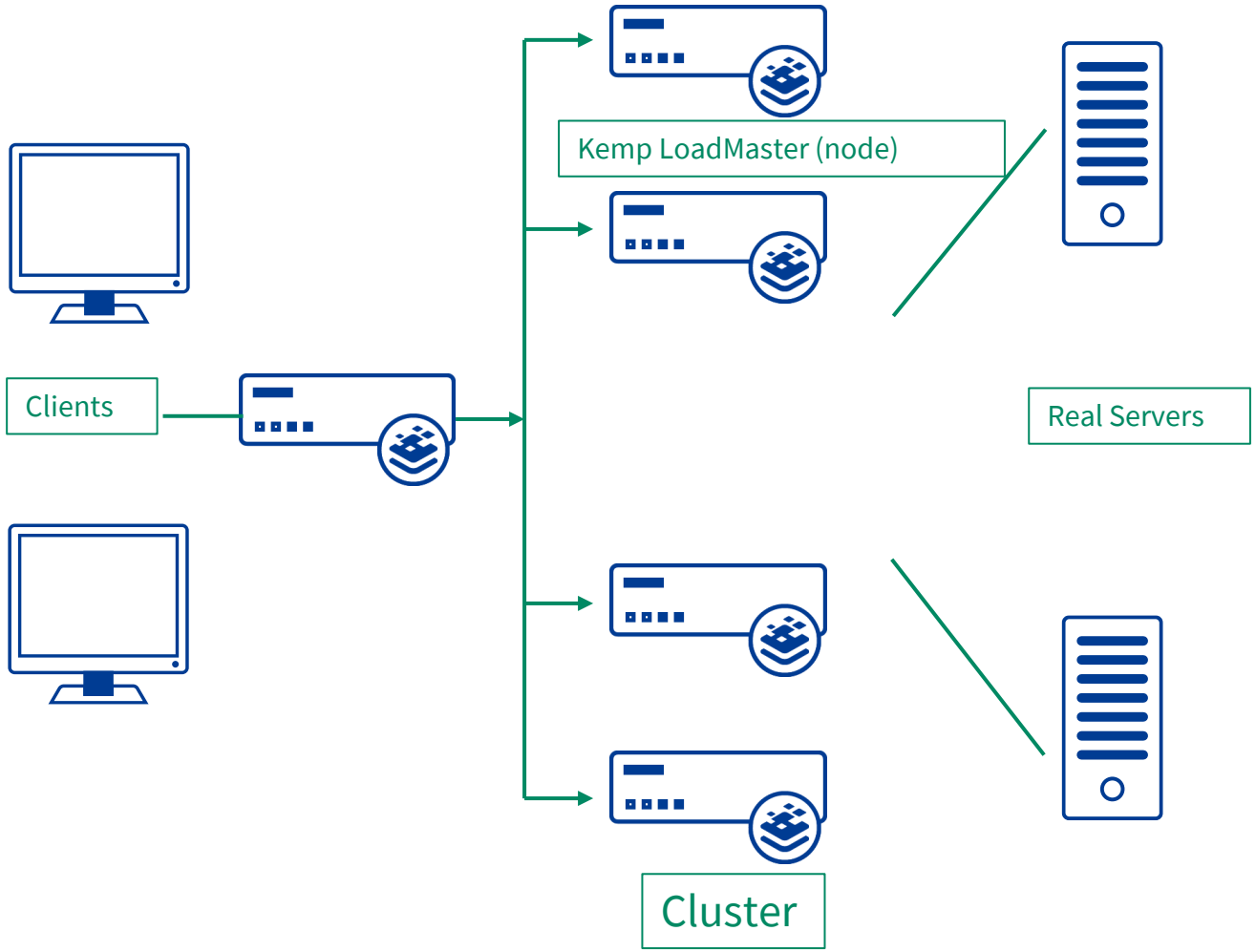
High Availabilty.....

- High Availability Pair (Max 2 units)
- Equivalent products (No Mix+Match)
- Physical or Virtual Offerings
- Active/Passive Solution
- Cost Effective HA Deployment



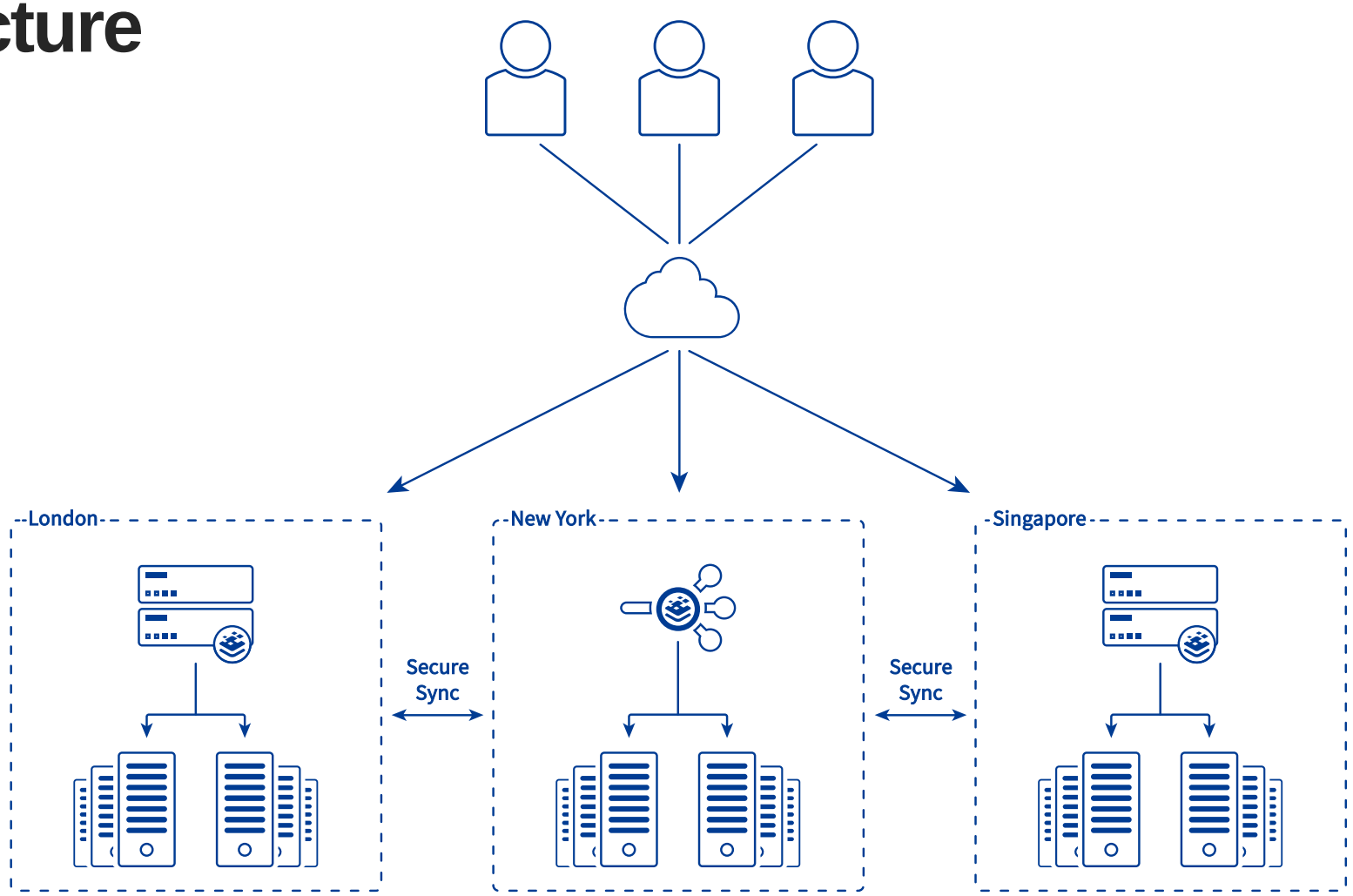
Clustering Options

- Clustering (min 4 max 16)
- Equivalent products
- Physical or Virtual Offerings
- Scale out – SSL TPS
- Ideal for linear growth

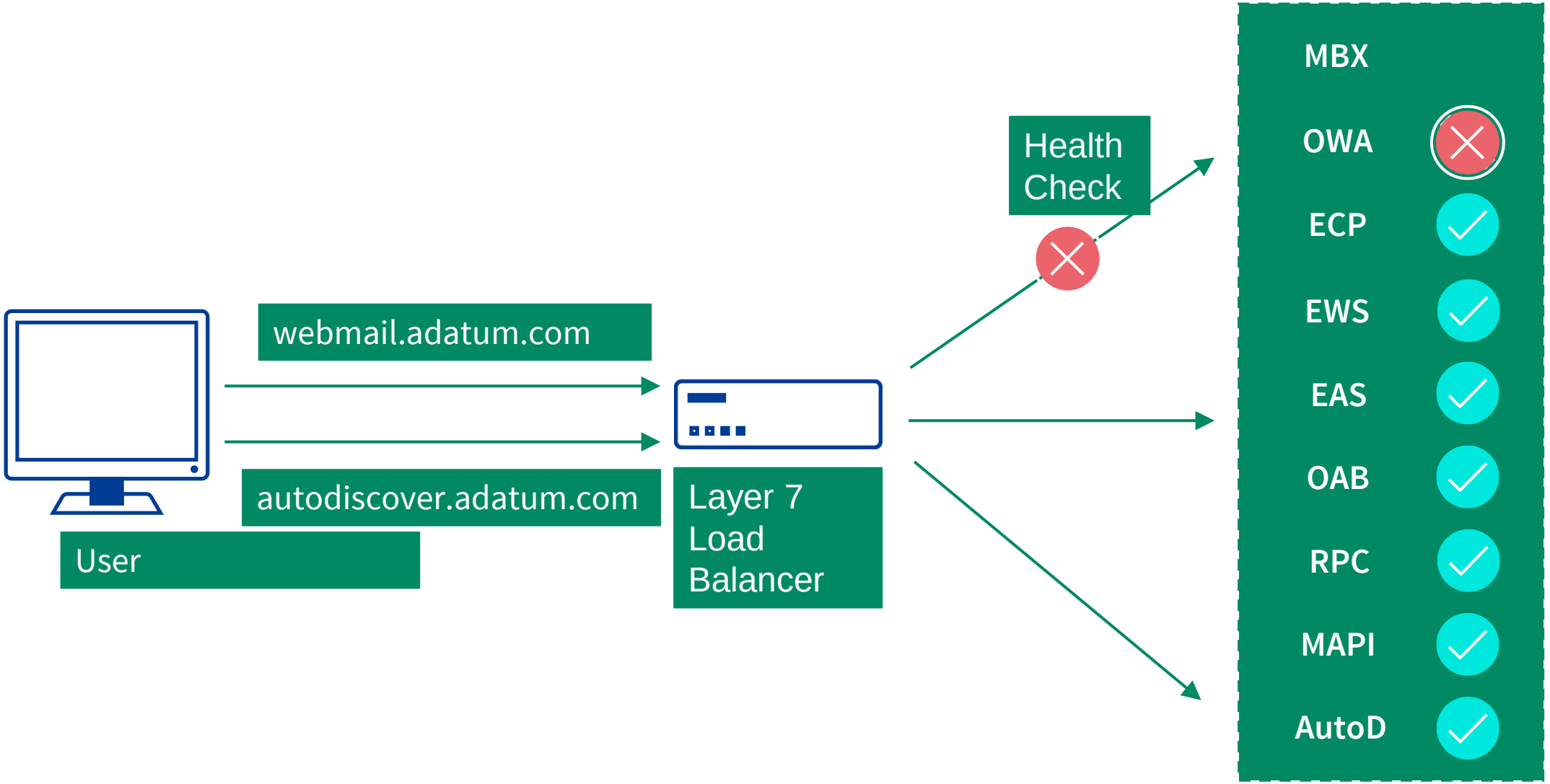


GEO Load Balancing Reference Architecture

- Multi-Site Load Balancing
- Geo Location Options
- Active/Active Offering
- DNS Based Solution



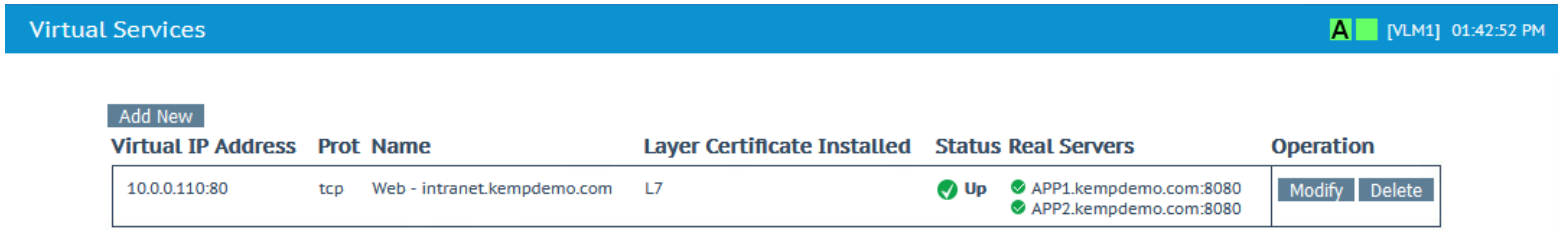
Example: Layer 7 Load Balancing



Progress®

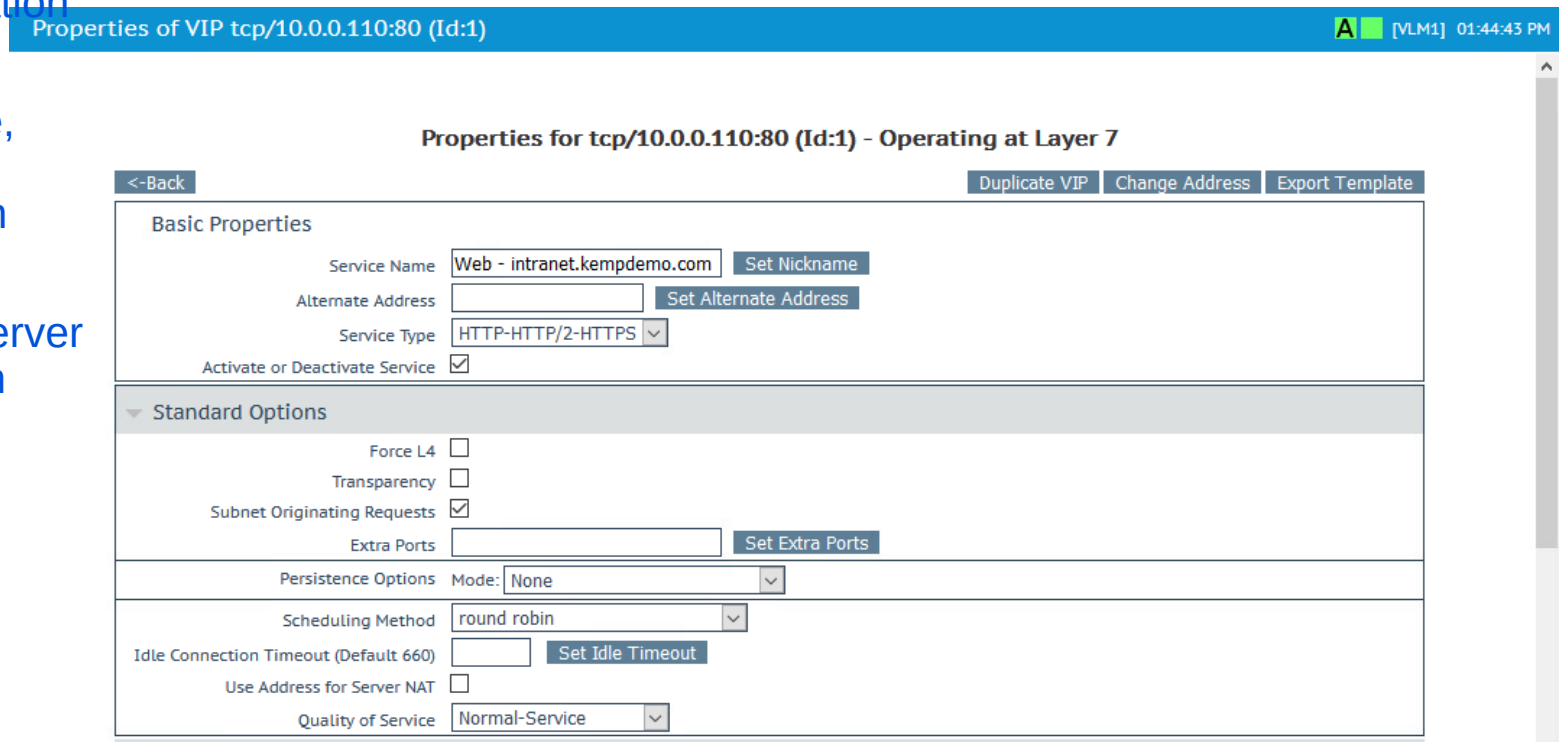
Virtual Services

Virtual Services



Virtual Service is the term for a load balanced, reverse proxy service hosted on the LoadMaster. Each service or series of services are configured to support a specific application or workload.

- Clients will connect to the virtual service, rather than their application server or servers. This helps increase application availability.
- The LoadMaster will determine which server to send each client request to; based on server health checking, advanced scheduling methods and server affinity.

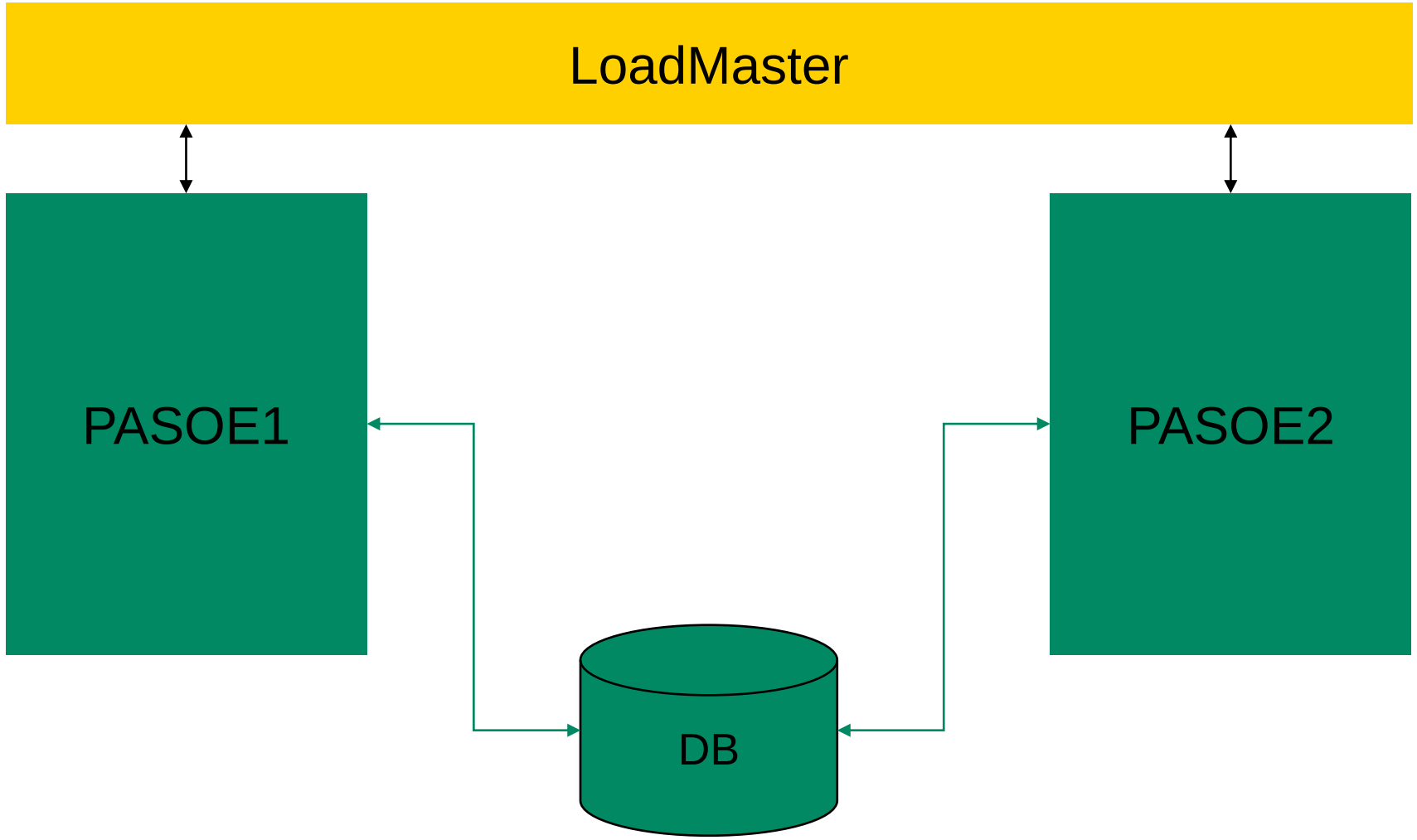


Reference: [Feature Description Virtual Services]

Progress®

Demo

Demo Setup



= VM met 1 Prod PASOE instance

= LoadMaster instance

Referenties en documentatie

- Gratis versie LoadMaster https://freeloadbalancer.com/
- OpenEdge HealthScanner
- OE en Load Balancing
- Avoid downtime with PASOE
- LoadMaster documentatie


Progress®